

TRANSMITTAL LETTER
(General - Patent Pending)

Docket No.
EN998082

In Re Application No. Boice et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/255,892	02/23/1999	Shawn S. An	23405	2613	9132

Title: DYNAMICALLY SWITCHING QUANT MATRIX TABLES WITHIN AN MPEG-2 ENCODER

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- * Appellants' Reply Brief (5 pgs.) (in triplicate); and
- * Return receipt postcard.

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Dated: August 12, 2004

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: Boice et al.

Group Art Unit: 2613

Serial No.: 09/255,892

Examiner: An, Shawn S.

Filed: 02/23/1999

Appeal No.: **RECEIVED**

For: DYNAMICALLY SWITCHING QUANT MATRIX
TABLES WITHIN AN MPEG-2 ENCODER

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Date of Signature: August 12, 2004

Mail Stop Appeal Brief – Patents
Commissioner for Patents
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Appellant's Reply Brief

Dear Sir:

This Reply Brief is being timely filed in triplicate pursuant to 37 C.F.R. §1.193(b) in rebuttal to certain characterizations and conclusions set forth in the Examiner's Answer mailed June 29, 2004, for the above-designated Appeal.

Remarks

Appellants respectfully submit that the Examiner's Answer fails to set forth a *prima facie* anticipation rejection of the pending independent claims (i.e., claims 1, 18 & 29) by Wheeler et al.

Appellant's invention comprises a method, system and computer program product that allows for the encoding of a sequence of video data. The encode approach includes storing within a quantizer multiple sets of quantization matrix tables at the same time. These sets of quantization matrix tables are separate and independent, and each set comprises at least one intra-matrix table and at least one non-intra-matrix table. Thus, a "set" of tables comprises two or more tables, with each set having at least one intra-matrix table and at least one non-intra-matrix table. Appellants respectfully submit that the Examiner's Answer fails to address this aspect of their invention. No discussion is provided in the final Office Action nor in the Examiner's Answer as to how the two tables of Wheeler et al. can be read to comprise multiple sets of quantization matrix tables, wherein the sets of quantization matrix tables are separate, independent sets of quantization matrix tables, with each set of quantization matrix tables comprising at least one intra-matrix table and at least one non-intra-matrix table.

In the preferred embodiment of Wheeler et al., there are two quantization tables; i.e., one table is used when operating on intra-coded macroblocks, and the other table is used on non-intra-coded macroblocks. These quantization tables are stored in queue table rams 690. At Col. 13, lines 24-32, the patent states:

... In the preferred embodiment there are two quantization tables; one table is used when operating on intra-coded macroblocks, the other table is used on non-intra-coded macroblocks.

As shown in Fig. 7, the quantization tables are stored in Q table RAMS 690. The CPU is responsible for loading all Q table entries. During encode and decode, the CPU loads the tables as required. Thus, the CPU is responsible for updating Q tables on video stream context switches.

Appellants respectfully submit that a careful reading of Wheeler et al. indicates that the patent is describing the MPEG standard which requires the use of an intra-coded matrix table and a non-intra-coded matrix table, and therefore requires a switching between the intra table and the non-intra table during the encoding process. The above-noted lines of Col. 13 of the patent would be read by one skilled in the art as referring to the switching between intra and non-intra tables at a context switch, e.g., a scene change.

In contrast, Appellants' invention recites that there are multiple sets of quantization matrix tables within the quantizer, with each set comprising at least one intra-matrix table and at least one non-intra-matrix table. By holding multiple sets of quantization matrix tables within the quantizer at the same time, and maintaining these tables separate and independent, Appellants are able to allow for dynamic switching in real time of complete sets of quantization matrix tables without requiring stopping of the encode process. Wheeler et al., on the other hand, expressly teaches in a preferred embodiment that there are only two quantization tables. One table is for operating on intra-coded macroblocks, and the other table is used for non-intra-coded macroblocks.

Since Wheeler et al. fail to disclose the existence of multiple sets of quantization matrix tables as expressly defined in Appellants' independent claims, Appellants respectfully submit that there can be no anticipation of their claims based thereon. Neither the final Office Action, nor the Examiner's Answer appears to address this aspect of Appellants' claimed invention. Since this aspect is missing from Wheeler et al., Appellants respectfully submit that there is no anticipation of their independent claims based on Wheeler et al.

Further, Appellants' independent claims recite allowing updating of one set of quantization matrix tables of the multiple sets of quantization matrix tables within the quantizer while another set of quantization matrix tables is in used by the quantizer. For an alleged teaching of this concept, the Examiner's Answer references at page 4, lines 1-4 and lines 17-19, Wheeler et al. at Col. 9, lines 25-36. Col. 9, lines 25-36 of Wheeler et al. is discussed at page 9 of Appellants' Appeal Brief.

Page 9 of Appellants' Appeal Brief submits that the reference to Col. 9, lines 25-36 of Wheeler et al. mischaracterizes the teachings of Wheeler et al. Specifically, the cited lines of Wheeler et al. address the MQUANT value, and the providing of a range of MQUANT values so that a user can select an appropriate MQUANT value to control the allocation of bits. As noted above, Appellants' independent claims define a single set of "quantization matrix tables" to comprise at least one intra-matrix table and at least one non-intra-matrix table. Based on this definition, the table of MQUANT values described by Wheeler et al. is distinct from Appellants' recited "sets of quantization matrix tables". The MPEG standard defines both "quantization matrix tables" and "MQUANT value" as separate concepts within the encoding process. For these reasons, Appellants traverse the Examiner's Answer apparent reliance on the discussion in Wheeler et al. at Col. 9, lines 24-36 to support an anticipation rejection of their independent claims.

Further, Appellants note that page 8, lines 7 & 8 of the Examiner's Answer states that Appellants' discussion regarding MQUANT values at page 9 of the Appeal Brief is deemed moot in view of the "above response". The Examiner's Answer thus appears to acknowledge the irrelevance of Col. 9, lines 24-36 to the processing set forth in the last element of Appellants' independent claims. However, at page 4 of the Examiner's Answer, reliance on Col. 9, lines 24-36 of Wheeler et al. remains. For this additional reason, Appellants respectfully submit that a *prima facie* case of anticipation against the independent claims presented is not stated in the Examiner's Answer, and withdrawal of the rejection based thereon is respectfully requested, as well as withdrawal of all other rejections relying upon the teachings of Wheeler et al. as a base reference against Appellants' independent claims.

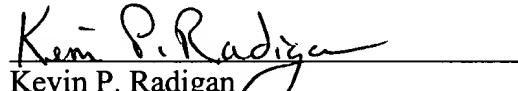
The remaining remarks contained at pages 8 & 9 of the Examiner's Answer address certain dependent claims discussed in Appellants' Appeal Brief. For example, claim 4 of Group I recites that the means for dynamically switching further includes a table set register wherein the quantizer is adapted to control the switching of the quantizer from one set of quantization matrix tables to another set of quantization matrix tables. The Office Action alleges that the MQUANT

register 692 in Wheeler et al. comprises a conventional "table set register" with a function as recited by Appellants in claim 4. This again is respectfully traversed. The MQUANT register 692 is well known in the art for holding quantization step size. The register does not function or assist in switching between sets of matrix tables, let alone switching between sets of quantization matrix tables as the sets are expressly defined in the independent claims presented. With respect to claim 12, a careful reading of Wheeler et al. fails to uncover any disclosure of Appellants' recited concept of dynamically changing quantization matrix tables of a presently unused set of quantization matrix tables of the multiple sets of quantization matrix tables, while still quantizing the sequence of video data using one set of tables of the other set of tables. Again, a set of quantization matrix tables is defined in the independent claims as comprising at least one intra-matrix table and at least one non-intra-matrix table.

In view of the above-noted deficiencies of Wheeler et al. when applied against the independent claims at issue, all dependent claims are believed similarly allowable. None of the secondarily cited art teaches or suggests the above-noted deficiencies of Wheeler et al.

For the above stated reasons, as well as for those set forth in the Appeal Brief, Appellants respectfully request reversal of all rejections.

Respectfully submitted,



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Dated: August 12, 2004

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